RE: Tile Drainage - back of the envelope calculations

Thursday, June 18, 2015 2:49 PM

Subject	**RE: Tile Drainage - back of the envelope calculations**
From	Voorhees, Jeanne
To	Perkins, Eric; Perkins, Stephen
Cc	Hamjian, Lynne
Sent	Thursday, October 02, 2014 5:12 PM

Yes, I'm thinking Vicki, Chuck and David may be focusing on the rate at which tile drains are being installed, and getting a handle on the actual number of tile drains too.
Also, there could be some focus on the raw number that comes out of the end of a tile drain (which is much larger than what comes out of a treatment plant).

Again, I believe my notes are likely accurate, but there was so much info presented, I could be misrepresenting something. So definitely best to check in with Kip.

Thanks Again!
Jeanne

From: Perkins, Eric
Sent: Thursday, October 02, 2014 5:02 PM
To: Voorhees, Jeanne; Perkins, Stephen
Cc: Hamjian, Lynne
Subject: RE: Tile Drainage - back of the envelope calculations

OK, thanks Jeanne. Those loading rates for TP are a bit lower than what we estimated on average, but are in the ball park. Sam at Tt is checking the concentrations we used for hay fields, just to see how the concentrations compare.

Do you have a sense of what it was about Kip's presentation that was particularly newsworthy from a management perspective, i.e., the part that Chuck and David and Vicky may be focusing on? Is it that tile drainage is being installed in new areas throughout the basin much more rapidly than previously realized? I didn't realize new areas were being tiled much at all, so that does seem important if that's the case.

I can try to call Kip tomorrow – just don't know if we'll be able to connect.

Thanks,
Eric

From: Voorhees, Jeanne
Sent: Thursday, October 02, 2014 4:34 PM
To: Perkins, Eric; Perkins, Stephen
Cc: Hamjian, Lynne
Subject: RE: Tile Drainage - back of the envelope calculations

Hi Eric,

Okay, but I just want to reiterate that I'm only offering a snapshot. Kip did a lot more on the "back of the envelope" calculations which included some flow rates, but I don't recall where the flow rates came from or how he estimated them. His presentation was packed!

Here's another snapshot from my notes that may be useful:

Annual average load rates Corn fields TP = 0.8 lbs/ac/yr and TDP = 0.3 lbs/ac/yr
Hay fields TP = 0.5 lbs/ac/yr and TDP = 0.4 lbs/ac/yr

Again, I would check in with Kip to confirm my notes and get the entire scoop, including the rate at which tile drains are being installed (one contractor installed 30,000 feet in 2 days – and if I understand correctly, that's not unusual). It was an illuminating presentation!

Thanks,
Jeanne

From: Perkins, Eric
Sent: Thursday, October 02, 2014 4:14 PM
To: Perkins, Stephen; Voorhees, Jeanne
Cc: Hamjian, Lynne
Subject: RE: Tile Drainage - back of the envelope calculations

Well, I'm not sure yet how those measured concentrations from hayfields compare with our calculations, because we need to convert from concentration to kg/ha/yr – and we need the annual flow value to do that. Perhaps the easiest check would be for me to ask Tetra Tech if they can tell me the range of P concentrations for hayfields used in the modeling. The idea that 90% of surface flow is diverted to subsurface through tile drainage doesn't seem too surprising to me. We used some assumptions regarding tile drainage in the modeling, but I'd have to check to remember what they were.

From: Perkins, Stephen
Sent: Thursday, October 02, 2014 3:59 PM
To: Voorhees, Jeanne
Cc: Perkins, Eric; Hamjian, Lynne
Subject: RE: Tile Drainage - back of the envelope calculations

Thanks for sharing. I will anxiously await Eric's view of whether those data blow many other calculations to pieces or whether this is within the range of what we might have been expecting.

From: Voorhees, Jeanne
Sent: Thursday, October 02, 2014 3:45 PM
To: Perkins, Stephen
Cc: Perkins, Eric; Hamjian, Lynne
Subject: FW: Tile Drainage - back of the envelope calculations
Importance: High

Greetings Stephen,

I just wanted to pass on some info I heard at the LCBP TAC meeting yesterday (see below). Also, I know you will be speaking to David Mears tomorrow and I know that he and Chuck are being briefed tomorrow by Kip (and I suspect Vicki too). So, I wanted to be sure you were somewhat aware about the

tile drainage before your call with David tomorrow on the chance raises it.

At this point, the info has been shared with NRCS leadership, TAC and tomorrow with David and Chuck.

I'm hoping that Eric and Kip can connect before our internal meeting on Monday, if not, I'll have my TAC notes to work from.

Thanks,
Jeanne

From: Voorhees, Jeanne
Sent: Thursday, October 02, 2014 9:22 AM
To: Perkins, Eric
Cc: Kip - Potter; Smeltzer, Eric
Subject: Tile Drainage - back of the envelope calculations
Importance: High

Greetings Eric,

Kip did a presentation yesterday at the TAC meeting, The Potential Role of Soluable P and Tile Drainage in P- loading to Lake Champlain.

I'd like to suggest that you give him a call rather that have me translate my notes and present something erroneously. But to give you an idea, here are a few items from my notes…..

- The highest single EMC of TP and TDP was from a hayfield, 15,560 ug/l and 15,140 ug/l.
- Overall, changing surface flow to subsurface flow – tile becomes the dominant flow pathway, accounting for 90%

Again, the above info is from my notes, and I don't want to rely solely on them, but it gives you an idea. Would rather have Kip and you have a direct conversation.

Thanks,
Jeanne